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ABSTRACT

Various communication studies have revealed the existence of a "preverbal" stage of communication consisting of centers within the brain that exists in an innate form or a form preprogrammed for future information acquired from the environment through experience (socialization). Such centers serve to prepare the individual for communication at the intrapersonal and interpersonal levels. These ideas about the material within the centers and their "location" are predicated on knowledge gained from contributions made by behavioriral, psychoanalytic, and neurophysiological approaches to communication study. The preverbal model operates on drives associated with both internal and external stimuli. That is, the information stored in the preverbal centers can act in concert with that in other centers to provide an internal motivation or in concert with that in external centers to produce more or less predictable communication. The level of prediction, however, is mediated by the style or dominance of one hemisphere of the brain over the other and the control of one evolutionary level of the brain over other levels. Whether such centers are scientifically verifiable will be determined in the future. For the present, it is sufficient to suggest that the preverbal stage of communication does exist and that it affects the communication of both intrapersonal and interpersonal communication. (Author/FL)

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# TOWARD THE ESTABLISHMENT OF A PREVERBAL STAGE OF COMMUNICATION

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TOWARD THE ESTABLISHMENT OF A PREVERBAL

STAGE OF COMMUNICATION


## Abstract

A model of communication is posited that examines the earliest, or preverbal, stage of communication. From the contributions of various approaches to the study of communication the preverbal stage was described as consisting of "centers" or areas within the brain (structures) which exist either in an innate form or a form preprogrammed for future information acquired from the environment through experience (socialization). Such centers, it is suggested, serve to prepare the individual for communication at the intrapersonal and interpersonal levels. The material within the centers and their "location" was predicated on knowledge gained from contributions made by behavioral, psychoanalytic, and neurophysiological approaches to the study of communication. The preverbal model, it is suggested, operates on drives associated with both internal and external stimuli. That is, the information stored in the preverbal centers can act in concert with other centers to provide an internal motivation or in concert with external centers to produce more or less predictable communication. The level of prediction, however, is mediated by the style or dominance of one hemisphere of the brain over the other and the control of one evolutionary level of the brain over other levels. It was predicted that such an analysis could begin to explain non-logical and non-social behaviors.

# TOWARD THE ESTABLISHMENT OF A PREVERBAL STAGE OF COMMUNICATION

Prior to any communication, even prior to an awareness of the situation requiring communication, we begin with information stored somewhere in our brain that will affect the communication in a multitude of ways. This information includes elements that, through themselves or in combination with other elements, establish our predispositions to act. In this regard, such elements may be structures that exist prior to the attachment of language. We might suggest that this area be called the "preverbal" stage of communication; an area where we have attached labels and referents, and therefore meanings, to natural storage "depots." The purpose of this essay is to examine such an "area" and its impact on communication.

What has been labeled the preverbal stage exists prior to the establishment of the "I," of the intrapersonal form of communication. Whereas these elements, concepts, and constructs are unobservable (e.g., attitudes, beliefs, concepts of self, drives, perceptions, prejudices, values) we rely on verbal descriptions (usually in the form of some action) of the event or feeling. Where these reside, what they are, and how they are formed is still open to debate. It is suggested here that once the preverbal stage is "loaded" (through innate and learned materials) it moves through a continual process of change. That is, as we communicate with others and our environment, the preverbal structures refine and redefine the material stored in them. Thus, for example, our attitudes change through exposure to others and over time. The fact that every person has a predisposition to develop a language suggests that some "structure" is innately positioned in our brain, ready and able to receive the necessary information with which to work. The use of the term, "load," is a viable description of what the preverbal stage does; it loads us for communication in terms of our perceptual awareness, our selectiveness in terms of exposure and retention, and sets the "tone" of the communications we engage in.

It is appropriate at this point to try and conceptualize what the preverbal stage "looks like." This will be difficult since the structures are described not in the sense of three-dimensional space but instead as areas of the brain. Historically, the perspective of "thought" and related variables has progressed from the notions of "phlegm" and "spirits" to a more chemical and electrical orientation. At one time the human being perceived communication-related materials to exist in the heart, where such things as "good" and "bad" thoughts, fate, and the like were pumped in and out of the system. We have progressed to the point now where we are fairly certain where some generalized areas of the brain have been associated with verbal and nonverbal message perception and, in a few cases, with the actual encoding of a message.

As perceived here, then, the preverbal stage of communication is an area of the brain that is not directly language based, that is, an area both non-symolic and non-normative. What exists in this area are simply the structures which affect those levels of communication that are symbolic and normative (i.e., intrapersonal and interpersonal). It consists of concepts -- things we cannot see, feel, or hear -- that exist prior to being named or discussed. The preverbal stage is placed in the brain based on research on both verbal and nonverbal neurophysiological activity (e.g., Anderson, Garrison, and Anderson, 1979). This literature suggests that most nonverbal, spatial-temporal, gestalt, and emotive communication is based in the right hemisphere. The left hemisphere is associated with the verbal, analytical, and logical centers of "thought." Thus the right hemisphere is expressive and the left is analytical; the left hemisphere is also considred the dominant side of the brain as it posssesses the capacity to encode and decode ve bal messages (at least in western culture [see, for example, Tsunoda, 1978, for a discussion of western versus oriential brain functioning and language]).

As perceived, then, the preverbal stage is removed from symbolic and normative behavior. Elements at this stage are simply the initial structures

which:

*Affect how we will perceive the communication climate.

*Affect how we will communicate initially.

*Provide the skeletonal compartments from which symbolic communication will be analyzed, "colored," and reacted to. Sort of like a file cabinet, they will be later used to store, tag, and disseminate information for symbolic communication.

*In terms of the communication system, the preverbal elements are the initial input to the system which then, after "loading," are used to evaluate and interpret the situation and responses at the other levels (i.e., intrapersonal and interpersonal).

*Although existing in all people, the structures differ "size." What we mean by this is that any given moment one or more of the elements within the structures may be more "active" or "important" to the communicator. If an element is more active (prone to affecting the communicator and communication), then on one or more of the symbolic and normative levels, it will exert more pressure on how that person will communicate (or choose not to communicate).

Such elements that exist within the structures form the basis for the concepts we label as attitudes, hopes, fears, beliefs, prejudices, values, drives, motivations, and so forth. These elements exist prior to the attachment of referents and represent global perceptions of those things which influence communication at the intrapersonal and interpersonal levels.

The importance of the preverbal stage will be clearer when some of the divergent approaches to the study of communication have been examined for their impact on the individual and the preverbal stage of communication. In our minds the use of such concepts as attitude, belief, fear, esteem, and prejudice indicate an awareness that these concepts exist somewhere and interact with each other to produce differing effects on our communication.

## TOWARD THE PREVERBAL

In the following sections the influence of three approaches to the study of human communication will be examined for their contributions which point to the

existence of the preverbal stage of communication. First, an examination of the behavioral approach will be taken, suggesting (1) drive and motivation (i.e., behaviorism) and (2) perception (i.e., cognitive and gestalt perspectives). Second, an examination of the psychoanalytic approach which suggests consciousness and unconsciousness. And, finally, an examination of the neurophysiological approach, which suggests structure and location for those variables suggested by other approaches. It is from the neurophysiological area that we will create a "model" of the preverbal stage of communication, one of location and structure that affects the intrapersonal and interpersonal levels -- and the symbolic and normative expectations -- upon which communication is based.

## The Behaviorist-Gestaltist-Congitive Contributions

The major difference between the behaviorist (connectionist) and the cognitive approaches to the study of human communication is how some response is mediated. The connectionists are better known in terms of stimulus-response or, more precisely, the study of the connection between some stimulus evoking some response or behavior. The original "cognitive" approach is better known in terms of the gestalt, or the interrelated parts building to consciousness and thinking. This Kurt Lewin suggested occurs in the concept of "life space" (1936), which has been defined as "...the totality of facts which determine the behavior of any given individual at a given time (Hill, 1971, p. 107)." Thus the two approaches differ in their approach to learning; they also differ in their approach to the study of communication. Additionally, the cognitive approach has split from the gestaltist to a more information processing perspective. That is, rather than life space, the cognitive approach looks at the "structures" and "styles" of cognitions that lead to behavior.

In terms of learning, the connectionists generally agree that all responses are elicited by some stimuli. How these responses come about is determined by the connection between the stimulus and the response. Such connections have a

variety of labels, depending on which theory the individual researcher is working with, but the names associated with the connection include habit, drive, bond, conditioned response, and so forth. The major emphasis is placed on the response, the stimuli, and how experience (reinforcement) changes the connections between the stimulus and the response.

From a cognitive or gestalt approach, however, the "connection" between the stimulus and the response is not a simple matter of behavior. Instead, these approaches look at the cognitions that precede the behavior. Such cognitions as attitudes, beliefs, and perceptions of environment (for the cognitive-oriented person) or goals and barriers (for the gestalt-oriented person) modify the person's behavior.

Communication occurs when some stimulus provides a motivation to do so, or so a connectionist perspective would argue. This stimulus could be either external or internal and the result of some past stimuli interacting with a present one. The stimulus, then, provides a motivation to communicate. The strength of this motivation might be considered a drive toward communication; but the question is, what causes this drive or motivation? From a connectionist perspective, all behavior involves stimulus-response connections: a response is never simply emitted, it is always a response to some stimulus. Additionally, the stimulus is conditioned via some from of reinforcement (positive or negative). The connectionist, therefore, takes a more objective view of the world:

> all complex forms of behavior, including reasoning, habit, and emotional reactions are at bottom composed only of stimulus-response events which can be seen, measured, and therefore known....Moreover, once we have isolated the stimuli that produce responses, whether normal or abnormal, we can use them to predict an individual's behavior and, if the stimuli are within our control, to control...behavior completely (Goldsenson, 1970, pp. 149-150).

The connectionist position, however, is more complex than that of a simple stimulus-connection-response linear combination. Several connectionists have

suggested other variables, perhaps cognitions, mediate the effect of stimuli on the response. Such intervening variables have been labeled as habit strength and drive (Hull, 1943, 1952), incentive motivation (Spence, 1956), and sign-learning (Mower, 1960). For Hull and Spence these intervening variables are found in the connections between the stimulus and the response. Thus, the response (communication in our perspective) is based on habit strength, drive, or motivation and the reduction of same via reinforcement provided either positively or negatively. Mowrer (1960), however, suggests that a more cognitive occurrance takes place. While still working with the increases or decreases in some drive, he suggests that learning produces signs of sensations we label as hopes, fears, disappointments, or reliefs. Thus, connectionist theory takes into consideration things we cannot see and must be located within the mind.

The cognitive approach is more concerned with consciousness and perception of "environment." Thus, while the cognitive approach still examines the responses of people, it is from an association of elements that produce thought. This association of elements provides insight on the preverbal stage of communication.

The gestaltist orientation envisions perception as more than learning. The gestalt was viewed as the whole as being greater than the sum of its parts. Wertheimer (1945) suggested that a pattern or figure was judged against the greater background around it. Additionally, the relationship between the figure and background changes as perception changes. Kurt Lewin (1936) created a gestalt system that emphasized motivation within the figure-background. Life space, as Lewin conceived it, could be laid out topographically with goal(s), areas we would like to approach (positive valence), areas we would not like to approach (negative valences), and barriers to reaching goals mapped out. Additionally, vectors (a force operating in some direction) were added to provide a path through the life space -- a concept similar to drive. Thus, an

individual, by knowing what to approach, where the barriers are, and the vectors in his/her life space can predict behavior. In terms of communication, knowing what the perception of communication is, what barriers might occur (language or environmental problems), and the need to communicate (vectors) allows us to predict some communication outcome.

Lewin's contribution to cognitive perception was that we do not simply react to some increasing or decreasing drive -- we consciously or unconsciously act according to beliefs, express attitudes, strive toward goals, and map out these perceptions in terms of some "life space." This contribution was expanded upon, was linked to the connectionist approach, by Edward Tolman (1959). Tolman suggested that people have a sign-gestalt-expectation; we expect a rational organization to our environment and from that we can predict behaviors. Our belief, attitudinal, and value structures lead us to expect behaviors to occur in ways consistent with those structures. If they do not, then we may organize them to be consistent with the environment. We are motivated or driven through our perceptions of the environment to avoid things we fear or loath and to approach things that give us pleasure or reward us.

The influence of the gestaltists has recently given way to a different mode of cognitive thought. The notion of information theory has produced a new perception of cognition that "...endeavors to discover psychological principles of organization and functioning governing processes from which they arise (Anderson and Ausubel, 1965)." The term "cognition" is referred to as all the processes by which sensory input is transformed, reduced, elaborated, stored, recovered, and used. The cognitive approach is concerned with these processes even when they operate in the absence of relevant stimulation. As such, they go far beyond the gestalt to examine sensation, perception, retention, recall, problem solving, and thinking that refer to aspects of cognition (Weimer and Palermo, 1974).

Connectionists assume that we cannot be understood without considering

higher mental processes or structures. They also assume that the unit under consideration is purposive action (similar to Tolman's concept of sign-gestalt-expectation) as a behavior. They believe that we are capable of consciously apprehending the world we live in, but perceive selectively. In conjunction with their connectionist past, the cognitivist assumes that learning is essential to the development of cognitions and cognitive structure. This cognitive structure they suggest is a function of past experience, which is both innate and learned. They also suggest that cognitions are organized wholes of interdependent parts. Finally, they assume that cognitive structures can be more or less differentiated, unified, organized into hierarchies, are rigid, and, that interactions among cognitions yield cognitive conflict, uncertainty, and consistency/inconsistency about perceptions. They suggest that such interactions among cognitions are like motivational forces (e.g., drives, vectors) which can trigger behavior and determine direction. Thus, we are conscious entities subject to habit. Because our perceptions of the world are based on expectations of the environment in which we communicate in and descriptions of that environment are provided based on language, we are both affected by the environment and affect that same environment. The origins of our behavior are both innate and learned; our cognitive abilities are innate but are modified or adpated through experience with the environment and others within it.

The cognitive position suggests that internal processes work in conjunction with internal domains. These domains and processes suggest that an initial area or areas are responsible for the storing, loading, and reloading of information at two levels: the conscious and the subconscious. What these areas are and how they work are typically explained in terms of theoretical models that differ from uni-dimensional to multi-dimensional representations of thought and action. Most researchers seem to support the multi-dimensional approach, as advocated by Bruner (1956, 1963).

Jerome Bruner suggests that cognitions are formed from the categorization of information in certain ways to get more out of the information. He assumes that we have rules for organizing incoming stimuli that help to make sense out of the environmental complexity that surrounds us. He also suggests that the rules we adopt are affected by the particular culture we live in. What results from these rules and the way we deal with information is cognitive structure. What is of interest at the preverbal stage is Bruner's concept of cognitive need. Basically, he suggests that need states exist in terms of "high," "low," and "middle" drives. The high and low drives produce concrete cognitive activity -- "rote" learning. The middle drive, however, promotes more abstract learning or what Bruner calls "generic" learning. Although he feels that there is evidence that this (the middle) is a real need, he is doubtful that it can be proven scientifically. He does suggest, however, that when people are blocked from completing a cognitive task they will continue to try and categorize via their own categorizing "rules," even in the complete absence of information.

That there exists a cognitive need suggests that there is an innate structure which is receptive for abstract learning. From this structure and from the interface with the environment we are continually "reloading" these need areas in order to make sense out of our environment and to communicate with those in the environment. Such a phenomenon we suggest occurs within the preverbal stage of communication.

From the behaviorist-gestaltist-cognitive approach a strong case can be made for the notion of drive and motivation on several levels. The contributions to the preverbal stage from this diverse perspective suggest that (1) we possess a need (drive) to organize the environment around us either in terms of how it affects the connection between stimulus and response or how it affects cognition, (2) we are motivated in predictable ways to behave, and (3) external stimuli activate internal states (either as cognitions or as intervening variables) that may be arranged in some form of structure. We operate or

communicate on an approach/avoidance or reinformcement system that can be internalized (i.e., we do not necessarily need to be reinforced as from the connectionist perspective each time we are presented with a stimulus, and, from the more cognitive perspectives, we can internalize these approach/avoidance tendencies in terms of concepts; we can create our own reinforcements).

From this body of literature and thought it should be clear that we can act both consciously and unconsciously to the stimuli around us. Although we do not perceive all stimuli, we may act on such information either on a conscious level (and therefore intentionally) or subconsciously (through habit or unknown motivation). The dualism of function -- consciousness versus subconsciousness -- leads us to an examination of the psychoanalytic contribution to the preverbal.

## The Psychoanalytic Contribution

The psychoanalytic approach associates inner drives that are constantly in conflict with each other as the motivating features of both personality and behavior. Sigmund Freud's psychoanalytic theory (1943) represented a synthesis of many strands of knowledge applied to the development of a comprehensive picture of man. Although man was considered a rational decision maker, much of human behavior was attributed to the unconscious impulses stemming from primitive animalistic instincts. The individual was seen as developing through a series of stages of childhood during which a number of inevitable intrapsyche conflicts are faced and resolved.

The source of all human energy, according to Freud, is the id. The primitive urges of the id consist of instincts inherited in the evolutionary processes from lower animals. There are two basic groups of instincts: life (libido, or sex drive) and destructive (thanatos). The sexual impulses are inhibited and rechanneled into constructive activities by social constraints as the individual evolves through oral, anal, and phallic stages of development. Destructive instincts helped to account for the otherwise unexplicable tendency

of man to destroy himself and others. The impulses from the id are controlled by the superego, through the development of internal inhibitations. Though primitive urges still prompt the socialized person's behavior, we seek socially accepted ways to satisfy such needs. This change in control of behavior from id to superego represents a shift from a hedonism of the present to a hedonis… of the future and a change from acting on unconscious impulses to rational decision making. Freud considered the human being to be a basically amoral animal, but controllable through appropriate social constraint.

This approach differs from the behavioral in that its basic form of data is verbal report and is equated with and mediated by the experiences of the individual. The nonverbal code can also be considered from this approach. From the id nonverbal behaviors take form from unconscious and unintentional motivation. That is, the nonverbal norms and expectations understood in everyday interaction exist just below consciousness and rise into the consciousness when needed. Thus, we can look at both major codes (verbal and nonverbal) from the psychoanalytic approach, although most of us perceive the approach to be most interested with verbal report and behavior. Communication, then, may be a way of mediating tension caused by anxieties (sex drives and aggression). Through societal norms and values (communicated verbally and nonverbally) we take control of the instinctive drives and replace them with social learning. Borden and Stone (1976) suggest that creativity is enhanced through psychic energy, that is, the source of energy is more important than the direction (drive or vector); that source is the libido, the most primitive of psychic energy. From the libido an object that is feared causes motivation (much like the behavioral perspective) of two kinds (life and destructive) which, in turn, can be either socially controlled or not. Both, however, are found in the id.

The psychoanalytic approach maximizes an emphasis on the conscious and unconscious. In turn, it minimizes emphasis on external stimuli; we are

considered active rather than reactive. The conscious retains most of the present or on going action, the immediate past, and those salient experiences we have had. The unconscious is the totality of experience, from prebirth to the present. The notion of consciousness, however, is far from a simple dichotomy.

Freud suggested that there actually exists three levels of consciousness and two modes of thinking. At the most basic level is found the unconscious and most primitive modes of thought. Here we find thoughts that are repressed and stored, such thoughts are not brought into the conscious expect in the form of dreams which follow no logic or societal norms. At the highest level we find conscious and secondary thought. This level is epitomized by symbolic thought -- or language. Between the two levels (unconscious and conscious) is the preconscious. Within the preconscious level are the thoughts that transcend to the conscous when needed. Hence, we have two levels mediated by a third. Language-based thought is perceived as conscious, as manipulative, and possibily as reacting to the more primitive unconscious thought. The preconscious level might be perceived as more nonverbal in nature; here the normative expectations of society float from unconsciousness to consciousness as needed. While the conscious has an insatisfiable need for immediate gratification, the preconscious and conscious levels act to delay such gratifications through the mediating influence of social norms and values. Blum (1966) notes that at the unconscious level thoughts are

> ...guided solely by a desire for immediate fullfillment -- with no concern for logic, morality, time sequence, causal connections, or demands of external reality...[at the preconscious and conscious levels] anticipation of probable changes in the environment and of consequences of acts lead to the ability to delay gratification by relinquishing immediate satisfaction in favor of a better-adjusted and adaptive long-range plan of action (p. 2).

How do these three levels act and how do they maintain a healthy state of relationship among and between each other? According to Pervin (1970), the psychoanalytic approach is an energy system which operates on a hydraulic basis.

That is, energy flows in one major direction with other directions pulling some energy to other parts of the system. He also suggests that if energy is blocked it will generally find another direction, one that offers the least resistance. Human behavior, notes Pervin, "may take many forms, but basically all behavior is pleasure, meaning the reduction of tension or the release of energy (pp. 216-217)." Thus, the personality is an energy system that is constantly trying to maintain a state of balance (Borden and Stone, 1976). Such balance is found in the relationship of energy and cathesix (channeling of energy), and id, ego, and superego.

Basically, the relationship between the id, ego, and superego is found in terms of development. The id, as noted earlier, is instinctive. It has been suggested that the id is fixed in our constitutions and is possibly inherited. The id is unobtainable and is perceived as being unorganized. In this sense it is true psychic reality because it is not influenced by external reality (e.g., society). The ego, on the other hand, is an organized subdivision of personality. It is developed from the id under the influence of the perceptual, external world. As such, it is the organized part of the id which governs all psychological functions: learning, memory, reasoning. It functions to protect the individual from the outer world. Finally, the superego is perceived as the "moral" aspect of the three. The superego is formed (learned) from the id at early childhood and reflects the standards, norms, and values of the society in which the individual is reared. The superego can be viewed as operating in two ways, each dealing with gratification, or satisfaction occurring with the reduction of drive states (e.g., sexual and aggressive). The ego-ideal sets individual standards of conduct based on societal norms. The conscious sets punishments for deviations from societal standards. Thus, the ego-ideal "creates" morals and the conscious "creates" guilts.

Freud suggested that this dualism (or "pendulum") occurred within the individual and pitted the superego against the id. It was felt that inputs from

the environment and from the individual helped to influence this conflict, which was mediated by the preconscious and dealt with in the conscious. Thus, like a pendulum, the inputs set in motion the energy in one direction (e.g., toward the id) which were "corrected" by the preconscious and then swung toward the superego. From this hydraulic system analogy, the preconscious formed a block in the path of psychic energy which then took the path of least resistance to the superego.

In conceiving this system, Freud made several assumptions which characterized the swing from id to superego. First, he assumed that the personality system consisted of five subsystems: the perceptual, the mnemonic (memory), the unconscious, the preconscious, and the conscious. Second, he felt that stimuli originated in (1) the outside world (environment) and flowed through the perceptual system and in (2) the inner psychic itself. The outside stimuli entered the consciousness through the perceptual system and the inner stimuli through the preconscious system. Freud felt that all five systems had structural and functional aspects. For example, in the mnemonic system, the structure is in the form of memory "traces" while the function of memory is found at both the conscious and unconscious levels.

The psychoanalytic approach is basically a closed system (c.f., Budd, 1972). Freud felt that the energy available to an individual was limited and, that if energy was directed in one direction, the remaining energy moved in other directions with much less impact on the personality. Thus, not only is the system closed but is also extremely prone to entrophy.

The psychoanalytic approach suggests that the primary motivation to communicate is internal drive. This differs from the behaviorist-gestaltist-cognitive approach in that the cause of the drive can be totally "mental" or internal. Additionally, the structure of the conscious and subconscious (unconscious) offers an implication that part of our communication may be influenced by an innate or instinctive part of our make-up. The

unconscious may act as the initial "storage" structures that, through the actions of the preconscious on the conscious, causes us to change our feelings, attitudes, beliefs, and values in more or less predictable ways. In making such a statement we are suggesting that the closed system, as envisioned by Freud, is actually open. In this regard we suggest that through thought we are able to "tap" the unconscious and rationalize overt behaviors in terms of past experiences. We believe that from some initial structure(s) we build a semantic world from which to rationalize behaviors that do not have external or cognitive stimuli. The structure(s) then act as the initial "loading" and "reloading" centers for communication -- in other words, they exist at the preverbal stage.

The Neurophysiological Contributions

The psychoanalytic approach makes no assumptions as to where the ego, id, and superego exist, except that each exist in the mind. Recent contributions by the neurophysiologists are beginning to suggest that the concepts of Freud may well be placed within the two hemispheres of the brain. Although this research is still in its infancy, the ramifications of such thought and study may have far ranging consequences. Indeed, communication researchers are beginning to take notice of the potential contributions from the study of the human brain.

Although the majority of brain research has come from commissurotomized patients (those whos corpus callosum has been separated), certain generalized functioning principles seem possible. In an excellent review of the literature on the dualistic functioning of the brain (i.e., right and left functions and the synchrony of information transmission between hemisphere) from a communication perspective Anderson, Garrison, and Anderson (1979) note that bodily function and communication are controlled by different hemispheres of the brain. In most cases the right hemisphere controls the left side of the body; the left hemisphere controls the right side of the body. In terms of communication, "...verbal, linguistic, and mathematical abilities are located in the left brain hemisphere...nonverbal communication [found primarily in the

right hemisphere] can be processed by the left hemisphere but with little skill or competence (p. 75)." Thus, the left hemisphere is analytical while the right hemisphere is more gestalt. The two hemispheres, however, synchronize their activities, passing information from right to left and acting upon incoming stimuli or internal memory in a systematic and logical way.

Recent research indicates the notion of hemispheric dominance for verbal (language) and nonverbal communication might need reexamination. Sibatani (1980) suggests, based on the untranslated work of Tandanobu Tsunoda (1978), that the language we learn may alter the physical operation of the brain. Tsunoda's work suggests that the oriental (i.e., Japenese and Polynesian) individual's language and nonverbal human sounds are found in the left hemisphere of the brain. This suggests a cultural lateralization of brain activity based on native language and is close to Bruner's (1956, 1963) notion of culturally-defined rule systems. For western language, however, a left-right dominance seems to hold true (Stacks, 1982).

The problem, however, is that the brain does not always work in a logical and analytical way. In some instances the left brain hemisphere seems to be "short circuited;" emotive communications which defy logic are sometimes verbally and/or nonverbally communicated. Perhaps a better way to understand brain operation is in terms of "functioning units" (Restak, 1979). This perspective suggests that the brain operates on a goal-directed process which can be best understood in terms of alertness, information processing, and willful action, each dealing with purpose. Restak notes that "...mental activity thus takes on the quality of a dynamic process. In such a model it doesn't make sense to ask where a particular brain activity is located...a thing explanation is being sought to describe an activity which is essentially a process (p. 30)."

The process orientation of the brain, as noted earlier, can be examined as the process whereby the right hemisphere and the left hemisphere work together

to produce what we know as consciousness. It is interesting to note that the left hemisphere must analyze incoming information from the right in a logical way. As Stacks (1980) has pointed out, this may not yield the expected results. When the stimulus being presented is expressive in nature (e.g., emotional display or outburst) it should be initially processed by the right hemisphere and then transferred to the left for analysis. What would probably be the outcome, as in the case of non-logical communications, is the removal of such behavior or communication by the left hemisphere since it would differ from its own style. That is, the behavior becomes unexplanable and associated with non-social or non-logical communicative patterns.

An alternative model, however, has been advanced by Paul MacLean (1969, 1972, 1973, 1977) that examines the brain as being composed of not one but several interrelated and interconnected brains. Such a model suggests that the brain is a composite of three brains linked to each other through evolution, ranging from the most primitive to the most complex. This he calls the triune brain which is composed of the R-Complex (most primitive), the Paleomamalian, and the Neomamalian (most recent) brains. The Neomamalian brain is that which we most often refer to as the "brain." It consists of the grey matter which contains the processes for logic and thought. The Paleomamalian brain is found in the area of the limbic system and is responsible for certain bodily functionings and the expression and experience of emotions. The R-Complex brain is found at the end of the brain stem and is equated with the brain of a reptile, one which expresses behavioral and aggressive displays in a ritualistic sense (e.g., territorial drives, grouping, striking, greeting behaviors). The three brains work in concert with each other to produce human behaviors and reactions that could be considered "normal."

MacLean suggests that each of the three brains, although working together, possess its own intelligence, subjectivity, memory, and other functions. Each of the three brains is programmed through evolution to act but such action is

normally controlled by the next higher level brain. Thus, while we see something that might cause us to act from the R-Complex brain (such as aggression or territorial encroachment) which would normally be unacceptable, our Neomamalian brain retards the action or impulse as being non-social, inappropriate, and therefore non-logical for the occasion. It is when this higher brain control is short circuited by something in the environment or individual that we begin to see how the three brains operate. In the case where aggression has occurred, both verbally and nonverbally, the emotional impact of the situation may cause the Paleomamalian brain to short circuit the normal Neomamalian control and allow the individual to display inappropriate and possibly non-social behaviors and communication of either an aggressive or emotional nature.

MacLean's notion of the triune brain does not diminish the hemispheric dominance or style of the brain. Instead, it offers a different perspective from which to analyze communication. As Brown (1977) notes, the asymmetrical nature of the human brain, in which verbal and nonverbal functioning is specialized, sets the human being apart from other species with a neocortical level of development. This distinction, the asymmetrical nature of the human brain, suggests that both hemispheres may operate on the three levels, may analyze incoming stimuli (both internal and external to the individual) on any of the three "evolutionary" brains. In other words, rather than examing how the hemispheres of the brain operate, we might want to examine how each half, with its own specialized operations and perceptions, is influenced by each of the three brains. If we take MacLean's triune brain concept and include Julian Jaynes' (1976) notion of the bicameral mind, we begin to develop a clearer picture of how the brain may operate on the conscious and unconscious levels (i.e., the interplay between and among brain "levels" and hemispheres).

Jaynes suggests that consciousness came after language. That is, the right hemisphere communicated to the left as if verbal language was the medium of

expression. Jaynes suggests that early man's conversations with the "gods," as found in the early written works of civilization (the Hellenistic period for his analysis), were actually verbal thoughts transmitted to the left hemisphere from the right hemisphere. He suggests that early man hallucinated these thoughts into mists, trees, or areas just outside of the visual field. Support for this interpretation is found, according to Jaynes, from people who have reported being "directed" to do things by some unknown or known voice. The impact of such occurrances can be quite devastating. With no physical referent (like another person) the left hemisphere would have no logical cues or locus from which to work. Such voices, then, become the "unconscious" communicating. It is apparent that many "commands" by such "voices" are considered destructive and/or aggressive in nature -- thus the association with the id and the unconscious.

Jaynes further suggests that the notion of consciousness comes from language and may have been created by the necessity of logic in dealing with the concept of self. That is, the right hemisphere communicated to the left as if verbal language was the medium of expression. The right hemisphere, in Jaynes' opinion, possessed language of its own at one point in time.

Recent research on commissurotomized patients does suggest that human beings possess right hemispheric language. In a series of studies Sperry and associates (Gazzangia and Sperry, 1967; Gordon and Sperry, 1968; Sperry, 1968) found that the right hemisphere did possess a capacity for language that was not consciously received by the left hemisphere. The right hemisphere, heretofore thought of as the passive and "minor" hemisphere, acted as an entity of its own in terms of language. In one study Sperry (1968) obtained evidence that the emotional impact of a stimulus, when shown to the left visual field (received in the right hemisphere) of a commissurotomized patient, appeared to operate on its own level of consciousness. In such studies patients are typically shown stimuli to one hemisphere or the other. In the case of this study, Sperry

showed a nude pinup to a female split brain patient's left visual field. Although she was cognizant of a "flash of light," she exhibited emotional displays of embarrassment, blushed, covered her mouth as if in amazement, and began to laugh. She could not, however, explain why she was reacting in this manner. Findings such as this have led Sperry to speculate that in the right hemisphere "...we deal with a second conscious entity that is characteristically human and runs in parallel with the more dominant stream of consciousness in the major [left] hemisphere (Restak, 1979, pp. 175-176)." This also suggests that Freud's notion of the unconscious might be found in the right brain hemisphere.

Further support for a level by hemisphere interpretation comes from the work of David Galin (1976). Galin suggests that each hemisphere of the brain operates on its own "style." He further suggests that processing between the two hemispheres can be interrupted or inhibited by one side of the brain or the other. In such cases a massive charge of neural activity within the corpus callosum temporarily blocks the synchronous exchange of information. The right hemisphere blocks out the interpretations of the left that would deal with social responsiveness and logical, normative behaviors yielding emotional outbursts:

> ..."Be reasonable" or "Talk it out" are commands in the left hemisphere which usually succeed in gaining control of the situation over the right hemisphere. If the left hemisphere is only partially successful, however, the right hemisphere may continue to function independently....Such a sequence may also explain such things as slips of the tongue [Freudian] or the contents of certain dreams. In all instances the right hemisphere may be "speaking" in its own language of images and gestalt, which the left hemisphere has been only paritially successful in suppressing (Restak, 1979, pp. 177-178).

From this approach we may now begin to explain how certain non-normative and non-logical communications occur. The short circuiting of one hemisphere or the other, replacing control by the more logical left with the emotive right, might lead to a short circuiting of the cognitive (Neomamalian) brain's control over the situation. This would yield a transaction controlled by the emotional

(Paleomamalion) brain and of a style that is characterized as gestalt and nonanalytical. Thus, we have both location and structure within the brain that may or may not act in a symbolic, conscious way. If, as Galin suggests, the right hemisphere acts in ways resembling Freud's concept of unconsciouness then the id and ego may well be located within the emotional and gestalt right hemisphere. The superego, on he other hand, may well be defined as being located in the left hemisphere, the logical and analytical part of the brain conducive to creating norms and values and creating the surrounding society.

The interactive effects of style and evolutionary use might help to explain why certain behaviors occur even when they are socially unacceptable. Stacks (1982) suggests, for example, that

> when two people are arguing the amount of space between them decreases at times as the emotional impact of the argument increases....Logic would suggest that verbal assault should end with increased, not decreased space. However, if the impact of the argument causes an inhibition of the passage of information from right to left hemisphere (resulting in control of the situation passing to right hemispheric dominance) and the short-circuiting of the Neomamalian brain's control over the Paleomamalian, then the decreasing space might be a cue of increased tension, loss of control, and possibly even reversion to the R-Complex defense of territory, and non-logical behaviors which might then follow (pp. 13-14).

A similar outcome could occur with verbal, emotional, arguments.

This body of research and thought suggests that the notion of specialization within the brain should be reconceptualized. Such a reconceptualization might look at the interactive style of right and left hemisphere on the "preprogrammed" functions of each evolutionary brain. Given research that suggests that culture and language alone may indicate dominance of hemisphere (e.g., Tsuonda, 1978; Stacks, 1982), there should be identical centers present in each hemisphere of the brain which act as back up systems. If each hemisphere contained similar centers, the treatment of stored material would differ not only according to style but also by level of brain evolution and development. While we could rationalize R-Complex and Paleomamalian actions with the left

hemisphere, we could not with the right; the interpretation would differ due to "style" and location.

The neurophysiological approach suggests that the storage, use, and interpretation of stimuli may be operationalized as existing in the human brain. It further suggests that the establishment of some form of preverbal stage to communication is both possible and probable. It also suggests a possible location for activity and process within the brain and individual functioning as the "style" or use of information by each hemisphere of the brain.

## THE PREVERBAL STAGE

It should be clear at this point that no matter what the approach taken, stimuli received by an individual, both past and present, act to create drives toward communication. Whether these drives are external to the individual or are internal they affect communication in two ways. First, the information must be stored in ways that allow for categorization and yet be readily available for analysis. Second, information must be evaluated and compared to that already stored. We believe that such storage "centers" exist in both hemispheres of the brain. Some of these centers are "preprogrammed" and loaded at birth; other centers are more or less empty and are prepared to receive information from the environment.

It is tempting to suggest, along the lines of the triune brain, that the most basic or primitive feelings or wants are found in the R-Complex brain and the more complex concepts are located at higher brain levels. Such a model, however, would be overly simple and potentially misleading. While evidence indicates that the human possesses similar behavioral patterns as the reptillian (e.g., territorial drives, grouping behaviors, displays) and the primate (e.g., many similar nonverbal behaviors, to include emotional displays, preening behaviors, and quasi-courstship displays), those behaviors are modified and mediated by the brain's hemispheric style. We suggest instead that centers are

found on each side of the brain and that the style of that side helps to determine how information stored is evaluted in conjunction with the level of brain in control of the situation.

The operation of the preverbal stage is to prepare, to load and reload, the individual for communication. From the neurophysiological approach we are provided a glimpse of how internal and external stimuili are processed; how each hemisphere's style is suited to the information it receives. The neurophysiological also suggests how Freud's concepts of consciousness and unconsciousness may operate. If, as some suggest, the right hemisphere is roughly equivalent to the id and possesses some capacity for language, the left hemisphere might be analogous to the superego. The location of preconsciousness or ego might be represented as neural pathways both in the corpus callosum and deeper in the brain. The motivation to use information stored in either hemisphere can be attributed to the interaction of such drives as sex and aggression (right hemisphere dominant) and other drives to categorize external and internal stimuli (left hemisphere dominant). From the behaviorist-gestaltist approach we can suggest that while the left hemisphere may dominant, the size of the preverbal centers may be determined from either stimulus-reponse connections or vectors. Finally, the culture and language the individual is reared in helps to identify brain functioning.

The preverbal stage, then, is responsible for the perception of <u>possible</u> and <u>perceived</u> communication contexts. How we perceive that environment and those within it will depend upon which hemisphere is dominant. In other words, it will affect how the information being received is analyzed and reacted to. The preverbal stage and its centers serve as the initial loading and reloading points for communication at other levels. Some of the elements within the centers are innate and provide the initial motivation or drive toward communication. Other elements are either partially loaded genetically or are prepared to receive information through socialization. In the case of the

former, language centers and aggression are representative; in the case of the latter, social norms, attitudes, beliefs, and values are representative.

At differing points in time some centers will exert more pressure on the communication system. If the pressure comes from the left side of the brain, more normative and logical communication will follow; from the right hemisphere, communication will be more ideosyncratic, non-normative, and less logical and predictable. Further, it is entirely conceivable that these centers interact to create more pressure to communicate one way or another. For example, it is generally understood that attitudes and beliefs underlie overt behavior and communication. An attitude might be considered as consisting of a number of beliefs, some more salient than others, some more emotional than others. To create the attitude the beliefs cluster together with the more salient exerting more pressure on how the attitude will be held and expressed. Thus, elements within the belief centers may interact to yield the attitude.

The preverbal stage, however, is generally an unconscious phenomenon. At the intrapersonal level of communication we see its effects as the communicator decides on potential verbal and nonverbal strategies depending on how the preverbal stage has interpreted the communication context. The preverbal stage, therefore, acts to provide the motivation and information on which we evaluate and act on the intrapersonal level. Throughout the system, however, the preverbal stage is continually receiving and "screening" information for action at the intrapersonal and interpersonal levels.

Like all models dealing with the brain, we must assume certain facts and processes to work in ways that are logical. We make no pretentions at this stage of communication that the preverbal elements work in concert with rules. Our model of preverbal communication is intended as a starting point in the understanding of how we communicate at a level that is not influenced initially by the symbolic aspects of langauge and/or the normative expectations of the nonverbal code. We believe that the contributions of people from a variety of

different approaches to the study of communication point to the existence of the preverbal stage of communication. Whether or not such centers and elements are scientifically verifiable will be found in the future. For the present we suggest that the stage does exist and that it affects the communication of us all from the intrapersonal on through relationships with others.

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